

What is claimed is:

1. A computer program with network-based functionality, comprising:  
code for displaying a spreadsheet capable of operation in connection with  
5 a productivity application resident in computer memory;  
code for coupling at least one network-enabling object to said spreadsheet,  
wherein said at least one network-enabling object is configured to provide network-based  
functionality to said spreadsheet; and network-functionality code for allowing the productivity  
application to interpret the at least one network-enabling object.
- 10 2. The computer program of claim 1, further comprising linking code that  
enables said at least one network-enabling object to link to said network-functionality code.
3. The computer program of claim 2, wherein said at least one network-  
enabling objects is embedded in at least one cell of said spreadsheet.
- 15 4. The computer program of claim 1, further comprising linking code  
operative with said network-functionality code, wherein said linking code allows said network-  
functionality code to function in combination with said at least one network-enabling object to  
deliver said network-based content within said spreadsheet.
- 20 5. A spreadsheet with network-based functionality that may be used with a  
network-enabled productivity application, comprising:

a wireframe, including scripting code that remains static during a run time of a productivity application, said wireframe comprising at least one of: static data and query configurations; and

native script code operative with said wireframe to provide network-based content within said spreadsheet.

6. A method of creating a spreadsheet having network-based functionality using a network-enabled productivity application, comprising:

launching a network-enabled productivity application;

opening a spreadsheet with the network-enabled productivity application;

and

instructing said network-enabled productivity application to embed at least one network-enabling object for importing network-based content into said spreadsheet, wherein said embedded at least one network-enabling object is linked to network-functionality code such that use of the embedded at least one network-enabling object is interpretable by the productivity application.

7. The method of claim 6 further comprising:

saving said spreadsheet with the at least one embedded network-enabling object therein.

8. The method of claim 6, wherein said launching the network-enabled productivity application comprises:

launching the productivity application; and

launching network-functionality code, which enables network-based content to be viewed within the productivity application.

9. The method of claim 7, wherein said instructing said network-enabled productivity application comprises launching decryption code for viewing encrypted network-based content within the spreadsheet.

10. The method of claim 6, wherein said instructing said network-enabled productivity application further comprises placing said network-functionality code into a hidden area of the spreadsheet.

11. A method of using a spreadsheet with network-based functionality within a network-enabled productivity application, comprising:

launching a network-enabled productivity application; and  
opening a spreadsheet having code for providing network-based functionality in conjunction with at least one network-enabling object.

12. A method of using a spreadsheet with network-based functionality within a network-enabled productivity application, comprising:

launching a network-enabled productivity application;  
opening a spreadsheet from within said productivity application; and

activating at least one embedded network-enabling object for providing network-based content within said spreadsheet, wherein said at least one embedded network-enabling object provides a continuous feed of network-based content to said spreadsheet.

- 5                    13.    A method of generating a spreadsheet with network-based functionality embedded therein, comprising:
- launching a network-enabled productivity application upon a request from a user;
- opening a spreadsheet from within the productivity application upon a general request from a user; and
- embedding at least one network-enabling object to import network-based content into said spreadsheet upon a third request from a user.
- 10                    14.    The method of claim 13 further comprising:
- saving said spreadsheet with said at least one embedded network-enabling object therein.
- 15                    15.    The method of claim 13, wherein said embedding comprising:
- reading network-functionality code from a storage area associated with
- 20    said spreadsheet,
- encrypting the network-functionality code for said at least one network-enabling object, and

placing said encrypted code into a hidden area of the spreadsheet to create packed encrypted code.

16. A method for generating a spreadsheet with network-based functionality for use with a network-enabled productivity application, comprising:

launching a network-enabled productivity application upon request from a user;

opening a spreadsheet within said productivity application upon request from said user;

receiving instructions from said user to embed at least one network-enabling object that provides network-based content into said spreadsheet.

17. The method of claim 16, further comprising:

embedding said at least one network-enabling object into said spreadsheet.

18. The method of claim 16, further comprising:

saving said spreadsheet with said at least one embedded network-enabling object therein.

19. A method of running a network-enabled productivity application for providing network-based functionality to a spreadsheet, comprising:

launching a network-enabled productivity computer application upon request from the user;

opening a spreadsheet with said network-enabled productivity application  
upon request from the user, said spreadsheet containing network-functionality code for at least  
one network-enabling object that provides network-based functionality to said spreadsheet; and  
unpacking said network-functionality code for said at least one network-  
enabling object embedded in said spreadsheet.

20. The method of claim 19, wherein said network-functionality code is provided in an  
encrypted format, said unpacking further comprising decrypting the network-functionality code  
for enabling said at least one network-enabling object to be embedded in said spreadsheet.

21. A method of using of a spreadsheet with network-based functionality  
embedded therein in conjunction with a network-enabled productivity application, comprising:  
launching a network-enabled productivity application upon request from a  
user;  
opening a spreadsheet from within said network-enabled productivity  
application upon request from said user;  
changing the contents of said spreadsheet upon instruction from said user;  
and  
storing said spreadsheet.

22. The method of claim 21, wherein said spreadsheet contains packed network-functionality code in an encrypted format for embedding at least one network-enabling object that provides network-based functionality to said spreadsheet.

5 23. The method of claim 22, further comprising unpacking said network-functionality code for said at least one network-enabling object in said spreadsheet after said opening.

10 24. A method for loading a spreadsheet with network-based functionality with the use of a network-enabled productivity application, comprising:

15 launching a network-enabled productivity application upon request from a user;

opening a spreadsheet within said productivity application upon request from said user;

receiving an indication of said opening of said spreadsheet by an installed base service in said network-enabled productivity application;

detecting, with said installed base service, at least one network-enabling object;

20 reading embedded network-functionality code associated with said spreadsheet to incorporate network-band content corresponding to the at least one network-enabling object into said spreadsheet.

25. A method for transmitting a spreadsheet with network-based functionality from a central server for use with a network-enabled productivity application launched on a remote terminal, comprising:

establishing a connection with the remote terminal by a server, wherein  
5 said server has a spreadsheet with network-based functionality stored therein;  
receiving a request for said spreadsheet from said remote terminal; and  
transmitting said spreadsheet to said remote terminal in response to said  
request .

10 26. The method of claim 25, further comprising authenticating a user  
operating said remote terminal after said establishing said connection.

15 27. The method of claim 26, wherein said authenticating comprises:  
receiving identification information from said user; and  
determining a login status of said user band on said identification  
information.

20 28. A method performed by a server for transmitting a spreadsheet with  
network-based functionality for use with a network-enabled productivity application performed  
by a server, comprising:

establishing communication with a remote terminal;  
authenticating a user associated with the remote terminal;



receiving a request from said remote terminal to download a spreadsheet  
with network-based functionality; and

transmitting the spreadsheet with said network-based functionality to the  
remote terminal.

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29. The method of claim 28, wherein said establishing further comprises:  
establishing a secure connection with said remote terminal.

30. A method for transmitting a spreadsheet with network-based functionality  
for use with a network-enabled productivity application operating on a remote client,  
comprising:

receiving a request from a remote client at a web server for downloading a  
requested spreadsheet with network-based functionality;

authenticating said remote client; and

transmitting the requested spreadsheet to said remote client.

31. The method of claim 30, wherein said authenticating comprises:  
receiving authentication information from said remote client.

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32. The method of claim 30, further comprising selecting a version of the  
spreadsheet to be transmitted to said remote client based on the productivity application.

33. A productivity application, comprising:

means for displaying a user-readable representation of a spreadsheet  
operating in conjunction with a productivity application; and

means for providing network-based functionality to said spreadsheet.

5           34.     The productivity application of claim 27, further comprising: means for  
linking said providing means to said displaying means representation, wherein said linking  
means enables said the providing means to receive said network-based content within the  
spreadsheet from a network.

10           35.     A computer readable medium encoded with processing instructions for  
implementing a method of enabling network functionality within a spreadsheet, the method  
comprising:  
15                 displaying a user-readable representation of a spreadsheet;  
                   and linking at least one network enabled object to said spreadsheet for delivering  
network-based content thereto.

20           36.     A spreadsheet document having network-based functionality and  
embedded network-functionality code that may be used with a productivity application,  
comprising:  
                   a spreadsheet capable of operating under a productivity application  
resident in computer memory; and

at least one network-enabling object coupled to said spreadsheet, wherein said at least one network-enabling object is configured to provide network-based functionality to said spreadsheet.

5                   37.     The spreadsheet of claim 36, further comprising linking code that enables said network-enabling objects to link to said spreadsheet.

                  38.     The spreadsheet of claim 36, wherein said at least one network-enabling objects are embedded in said spreadsheet.

                  39.     The spreadsheet of claim 36, further comprising linking code software resident in the computer memory, which allows said at least one network-enabling object to deliver network-based functionality to said spreadsheet.

                  40.     A spreadsheet with network-based functionality that may be used with a productivity application, comprising:

                  a wireframe including data and scripting code that remains static during a run time of a productivity application, said wireframe further comprising:

                  at least one embedded network-enabling object to provide network-based  
20   functionality from within said spreadsheet, said at least one embedded network-enabling object in communication with native user interface, and

                  code for allowing said at least one network-enabling object to launch the network-based functionality from within the spreadsheet; the spreadsheet further comprising:

native script code for cooperation with said wireframe, to provide  
functionality to native functions of said spreadsheet.

41. A spreadsheet having network-based functionality for use with a network-  
5 enabled productivity application, comprising:

a wireframe, wherein said wireframe comprises static scripting code that  
maintains its state during a run time of the productivity application;

population data dynamically generated by a network enabled object to  
populate the wireframe during the run time of the productivity application, and

10 form data entered by a user during the run time of the productivity  
application for interaction with the wireframe and the population data of the spreadsheet.

42. The spreadsheet of claim 41, wherein said wireframe comprises at least  
one network-enabling object to provide network-based functionality to said spreadsheet.

43. The personal computer document of claim 42, wherein said form data is  
transmitted to a server over a network connection that provides feed for the network-based  
functionality.

20 44. A method of creating a spreadsheet having network-based functionality  
and embedded network-functionality code, comprising:

launching a network-enabled productivity application;

opening a spreadsheet using the productivity application;

embedding at least one network-enabling object that implements network-based functionality into said spreadsheet;

embedding network-functionality code in said spreadsheet, wherein said network-functionality code provides functionality to said at least one embedded network-

5 enabling object; and

saving said spreadsheet with said embedded network-enabling objects and said embedded network-functionality code therein.

45. The method of claim 44, wherein said launching comprises:

launching the productivity application; and

launching network-functionality software, wherein said network-functionality software is linked to said productivity application such that the network-functionality software adds network-based functionality to said productivity application.

46. A method of creating a spreadsheet having network-based functionality and embedded network-functionality code, comprising:

launching a productivity application;

opening a spreadsheet within the productivity application;

embedding at least one network-enabling object that implements network-based functionality into the spreadsheet, said at least one embedding network-enabling object comprising encrypted code for said at least one network-enabling object stored in a hidden area of the spreadsheet; and

embedding network-functionality code in said spreadsheet, wherein said network-functionality code provides functionality to said at least one embedded network-enabling object, said embedding network-functionality code comprising encrypted network-functionality code stored in said hidden area of personal computer document.

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47 The method of claim 46, further comprising:

saving said spreadsheet with said at least one embedded network-enabling object and said embedded network-functionality code therein.

48. A method for generating a spreadsheet having network-based functionality and embedded network-functionality code, comprising:

launching a network-enabled productivity application upon request from a user;

providing a spreadsheet maintained by said productivity application;

embedding at least one network-enabling object to implement network-based functionality into said spreadsheet by coupling said at least one network-enabling object to said spreadsheet; and

embedding network-functionality code into said spreadsheet, wherein said network-functionality code provides functionality to said at least one embedded network-enabling object for allowing display of network-based content.

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49 The method of claim 48, further comprising:

storing said spreadsheet with said at least one embedded network-enabling object and said embedded network-functionality code therein.

5           50.     A method of generating a spreadsheet with network-based functionality and network-functionality code embedded therein, said spreadsheet maintained by a network-enabled productivity application running therewith, the method comprising:

                  launching a network-enabled productivity application upon request from a user;

                  opening a spreadsheet upon request from a user;

                  embedding at least one network-enabling object to implement network-based functionality into said spreadsheet upon request from a user, said embedding comprising:

                  reading code from a native script code storage area in said spreadsheet,

                  and

                  encrypting code for providing network-based functionality in said spreadsheet; and

                  embedding the network-functionality code into said spreadsheet, wherein said network-functionality code provides functionality to said at least one embedded network-enabling object.

20           51.     The method of claim 50, further comprising:

                  storing said spreadsheet with said at least one embedded network-enabling object therein.

52. The method of claim 50, wherein said embedding network-functionality code into said spreadsheet further comprises encrypting said network-functionality code after reading said code from said native script code storage area.

5 53. The method of claim 52, wherein said embedding network-functionality code into said spreadsheet further comprises placing at least portion of said encrypted network-functionality code and said at least one network-enabling object into a hidden area of the spreadsheet to create packed encrypted network-functionality code after said encrypting said network-functionality code.

54. A method for updating a spreadsheet having network-based functionality in conjunction with a productivity application, comprising:

launching a productivity application upon request from a user;

opening a spreadsheet from within said productivity application upon request from said user, said spreadsheet containing network-functionality code and at least one network-enabling object that provides network-based functionality to said spreadsheet;

unpacking said network-functionality code in said spreadsheet; and

changing a portion of said spreadsheet upon instruction from said user.

20 55. The method of claim 54, wherein said unpacking of network-functionality code comprises activating code for unpacking to run in a productivity application extender of the network-functionality code.



56. The method of claim 55, wherein said unpacking of network-functionality code further comprises decrypting said encrypted network-functionality code and code for said at least one network-enabling object in said spreadsheet upon deployment of executor code in said native script engine.

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57. A method for transmitting a spreadsheet having network-based functionality and embedded network-functionality code by a remote terminal, comprising:

- establishing communication with a remote terminal at a sever, wherein said server has access to a spreadsheet having network-based functionality and embedded network-functionality code;
- authenticating an identity of a remote user corresponding to the remote terminal; and
- transmitting the spreadsheet with network-based functionality to the remote terminal, substantially upon authentication of the remote user.

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58. A method for transmitting a spreadsheet with network-based functionality embedded therein for use with a productivity application by a remote client, comprising:

- receiving a login request from a remote client;
- receiving a request from said remote client for downloading a spreadsheet with network-based functionality; and
- transmitting the requested spreadsheet with network-based functionality to said remote client, said spreadsheet comprising network-functionality code and at least one

network-enabling object for launching said network-based functionality from within said productivity application.

59. The method of claim 58, further comprising:

5 selecting a version of spreadsheet to be transmitted to said remote client.

60. A spreadsheet with network-based functionality having embedded network-functionality code that may be used with a productivity application, comprising:

10 means for displaying a user-readable representation of spreadsheet data capable of running on a productivity application resident in computer memory;

15 means for providing network-based functionality to said spreadsheet; and

means for linking said providing means to said displaying means, wherein said linking means enables said providing means to deliver network-based functionality within said spreadsheet.

61. An network-enabled productivity application for allowing a user to create spreadsheet having network-base a functionality, comprising:

native productivity application code for generating a spreadsheet;

20 a native script engine in communication with said native productivity application code, wherein said native script engine is capable of executing at least one macro;

and

network-functionality code for providing network-based functionality within the spreadsheet in conjunction with said at least one macro.

62. A network-enabled productivity application for allowing a user to create a spreadsheet with network-based functionality, comprising:

native productivity application code;

5 a native script engine in communication with said native productivity application code, wherein said native script engine enables execution of one or more macros; and

an add-in package, comprising:

an interface for communicating with said productivity application;

10 a library comprising a plurality of user tools, said user tools exposed to a user through a user interface, said user tools configured to provide network-based functionality within a spreadsheet;

15 a library comprising a plurality of developer tools, said developer tools exposed to the user through said user interface, said developer tools configured to enable the creation of the spreadsheet with network-based functionality; and

20 a productivity application extender in communication with said user tools, said productivity application extender configured to provide network-functionality services and application services within said productivity application.

63. A method of augmenting a productivity application with network-based  
20 functionality, comprising:

receiving custom network-based functionality to add network-based operations to a productivity application;

linking said network-based functionality to said productivity application;  
and embedding at least one network-enabling object within a spreadsheet maintained by said  
productivity application.

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64. A method of augmenting a productivity application, comprising:

storing software code for network-based functionality in a platform  
configured for use with a suitable operating system, said code for network-based functionality  
adding capability for network-based functionality to an existing productivity application;

transmitting said software code to a remote terminal operating said  
productivity application for allowing a user to launch and access network-based functionality  
from within a spreadsheet maintained by said productivity application.

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65. The method of claim 64, further comprising obtaining network-  
functionality software before said storing, wherein said network-functionality software facilitates  
said storing of code for network-based functionality within the productivity application.

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66. The method of claim 65, wherein said network-functionality software  
includes a developer tool set for enabling development of an Internet application within the  
productivity application by providing a means for creating code necessary for embedding at least  
one network-enabling object in said spreadsheet.

67. The method of claim 66, wherein the spreadsheet includes the internet  
application.

68. A method of augmenting a productivity application, comprising:

launching a software platform to allow authoring by a user of custom  
network-based functionality, said network-based functionality designed to add network-based  
operations to a spreadsheet;

linking at least one network-enabling object to said productivity  
application for allowing the user to access and launch network-based functionality from within  
said productivity application, said linking taking place upon instruction from said user; and

deploying said network-based functionality upon instruction from said  
user, wherein said deployment allows activation of said at least one network-enabling object  
from within said productivity application by said user.

69. A method for transmitting a software package to augment a productivity  
application with network-based functionality, comprising:

establishing a connection with a remote terminal at a central server having  
access to a software package for augmenting a productivity application on the remote terminal  
with network-based operations; and

transmitting the software package to said remote terminal.

70. The method of claim 69, further comprising authenticating the identity of  
a user operating said remote terminal prior to said transmitting.

71. A method for transmitting a software package to augment a productivity application with network-based functionality, comprising:

receiving a login request from a remote client;

receiving a download request from said remote client to download said

5 software package from a web server;

receiving authentication information from said remote client by web server;

verifying the authentication information of said remote client; and

10 serving the requested software package to said remote client, said software package comprising network-functionality software for augmenting a productivity application for launching network-based functionality from therein and embedding at least one network-enabling object for network-based functionality in a spreadsheet maintained by said productivity application.

15 72. A method of augmenting a productivity application with a plurality of network-based services, comprising:

obtaining network-functionality software, said network-functionality software including a library of routines to provide network-based functionality within a spreadsheet opened in the productivity application; and

20 installing said network-functionality software for use with said productivity application.

73. A method of augmenting a productivity application with a plurality of network-based user tools, comprising:

obtaining user tools containing a library of files enabling use of network-based functionality within a spreadsheet opened in the productivity application; and  
installing said user tools on a local client.

74. A method for creating a network-enabling object to provide network-based functionality to a spreadsheet, comprising:

receiving an information model that provides information for conforming a network-enabling object therewith;  
developing the network-enabling object to provide network-based functionality;  
conforming said network-enabling object with said information model;  
and  
placing said network-enabling object in an appropriate location of a system architecture for use in providing network-based functionality to a productivity application maintaining a spreadsheet.

75. A method for creating a network-enabling object to provide network-based functionality, comprising:

creating a Component Object Module (COM) control;  
importing a service library;

authoring custom functionality as a component, wherein said functionality is configured to enable access to network-based functionality from a productivity application maintaining a spreadsheet; and

registering said component as a COM component of the service library.

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76. A method for creating a network-enabling object to provide network-based functionality to a productivity application for operating a spreadsheet, comprising:

creating a Component Object Module (COM) control;

importing a service library;

receiving an information model, wherein said information model provides information for conforming the created network-enabling object therewith;

authoring custom functionality as a component, wherein said functionality is configured to enable access to network-based functionality;

registering said component as a COM component of the service library;

and

placing said network-enabling object in an appropriate location of a system architecture for allowing access to network content through a spreadsheet maintained by a productivity application.

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77. A method for creating a network-enabling object to provide network-based functionality to a productivity application maintaining a spreadsheet, comprising:

selecting a network-enabling object from a library of network-enabling objects;



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downloading the selected network-enabling object onto a computing device;

installing the downloaded network-enabling object;

launching a productivity application for manipulating a spreadsheet; and

5 adjusting settings for the productivity application to include said installed network-enabling object.

78. The method of claim 77, wherein said library comprises a plurality of files accessible from at least one of a web site, a File Transfer Protocol (FTP) site and a software medium.

79. The method of claim 77, further comprising opening the spreadsheet after said launching the productivity application.

80. The method of claim 79, wherein the network-enabling object is embedded in said spreadsheet after said opening of the productivity application.

81. The method of claim 77, wherein the network-enabling object is embedded within said productivity application to augment said productivity application.

20 82. The method of claim 77, wherein the network-enabling object is placed on said computing device as a distinct icon for launching said network-based functionality from any software resident on the computing device.

83. A method for creating a network-enabling object to provide network-based functionality to a spreadsheet, comprising:

selecting a network-enabling object from a library of network-enabling objects, wherein said library comprises a plurality of files accessible from at least one of a web site, File Transfer protocol (FTP) site and a software medium;

downloading the selected network-enabling object onto a computing device;

installing the downloaded network-enabling object on the computing device;

launching a productivity application on the computing device;

opening a spreadsheet from said productivity application; and

embedding said network-enabling object in said spreadsheet.

84. A method for downloading a network-enabling object to a computing device, comprising:

establishing a connection with a server having a library of network-enabling objects stored therein;

selecting a library of network-enabling objects;

transmitting a request for downloading a network-enabling object from said library of network-enabling objects, the network enabling object for allowing a spreadsheet to receive and manipulate network content within a spreadsheet; and

receiving the network-enabling object.

85. A method for downloading network-enabling objects to a computing device, comprising:

receiving a login request from a remote client;

5 exposing a library of network-enabling objects to said client;

receiving a request from said client for downloading a network-enabling object from said library of network-enabling objects, the network enabling object for allowing a spreadsheet to receive network content;

authenticates said remote client; and

transmitting the requested network-enabling object to said client.

86. A network-enabling object for providing network-based functionality to a spreadsheet productivity application, comprising:

initializing code for initializing the network-enabling object;

launching code for launching network-based functionality within a spreadsheet after said initializing code; and

user interface code for displaying of the network-enabling object in an appropriate location of a window, after launching.

87. The network-enabling object of claim 86, further comprising a registration code for registering said object as a COM component of a service library said initializing.

88. A network-enabling object for providing network-based functionality to a spreadsheet productivity application, comprising:

initialization code for launching network-based functionality from within a spreadsheet productivity application; and

run-time code for providing the network-based functionality in real-time.

89. A computer productivity application having network-based functionality, comprising:

native code for a productivity application, said native code provided with network-based functionality and non-network-based functionality, wherein said network-based functionality provides network-based operations within a spreadsheet maintained by the productivity application and said non-network-based functionality provides non-network-based functionality to the spreadsheet.

90. A productivity application having network-based functionality, comprising:

user interface code;

code for providing network-based functionality from within said productivity application, said network-based functionality exposed to a user through a said user

interface code;

code for providing non-network functionality from within said spreadsheet productivity application, said non-network functionality exposed to the user by said user interface code; and

native code for the productivity application, said native code embedded with said network-based functionality and said non-network-based functionality for access within a spreadsheet maintained by said productivity application.

5           91.     The productivity application of claim 90, wherein said code for providing network-based functionality further comprises a library comprising a plurality of user tools, said user tools exposed to the user by said user interface, code said user tools configured to provide the network-based functionality within the spreadsheet.

10           92.     The productivity application of claim 90, wherein said code for providing network-based functionality further comprises a library including a plurality of developer tools, said developer tools exposed to a user by said user interface code, said developer tools configured to provide said network-based functionality within the productivity application for embedding the network based functionality in the spreadsheet.

15           93.     A spreadsheet productivity application having network-based functionality, comprising:

native productivity application code for complementing non-network based functionality;

20           a native object model in communication with said native productivity application code;

a native script engine in communication with said native productivity application code, wherein said native script engine provides functionality to native scripts;

code for providing network-based functionality from within said  
spreadsheet productivity application;

code for providing non-network functionality from within said spreadsheet  
productivity application; and

5 user interface code allowing a user to activate said network-based  
functionality and said non-network functionality.

94. The spreadsheet productivity application of claim 93, wherein said  
network-based functionality is exposed to the user by said user interface code.

95. The spreadsheet productivity application of claim 93, wherein said non-  
network functionality is exposed to the user by said user interface code.

96. The spreadsheet productivity application of claim 93, wherein said code  
for providing network-based functionality comprises a library of user tools for use by a user to  
implement said network based functionality.

97. The spreadsheet productivity application of claim 96, wherein said user  
tools are exposed to said user through said user interface.

98. The spreadsheet productivity application of claim 97, wherein said code  
for providing said network-based functionality comprises a library of developer tools including  
tools for creating a spreadsheet with network-based functionality.

99. The spreadsheet productivity application of claim 98, wherein said developer tools are exposed to said user by said user interface code, said developer tools providing the ability to embed code for said network-based functionality within said spreadsheet  
5 by making a selection of a task.

100. The spreadsheet productivity application of claim 99, wherein said code for providing network-based functionality comprises a library of network-connectivity tools.

101. A method of creating a spreadsheet productivity application having network-based functionality, comprising:  
authoring native code for a spreadsheet productivity application, said native code configured to provide non-network functionality and network-based functionality, said network-based functionality including the ability to access network based content within a spreadsheet; and distributing said native code for use by a user.

102. The method of claim 101, wherein said native code comprises:  
a native object model, and  
a native script engine in communication with said native object model,  
20 wherein said native script engine for executing network-based functionality within said spreadsheet productivity application.

103. A method of creating a spreadsheet productivity application having network-based functionality, comprising:

generating network-based functionality in a software platform for providing network-based operations to a spreadsheet productivity application;

5 generating non-network-based functionality in the software platform; and  
generating native code for the spreadsheet productivity application, said native code embedded with said network-based functionality and said non-network-based functionality.

104. A method of creating a spreadsheet productivity application having network-based functionality, comprising:

authoring native code for a spreadsheet productivity application, said native code configured to provide non-network functionality and network-based functionality in a platform configured for use with an operating system, said network-based functionality being capable of providing real-time access to dynamic network-based content from a network within a spreadsheet; and distributing said native code for use by a user.

105. A method of creating a spreadsheet productivity application having network-based functionality, comprising:

generating network-based functionality in a platform configured for use  
20 with an operating system, said network-based functionality for providing network-based operations to the spreadsheet productivity application;

generating non-network-based functionality in a platform configured for use with said operating system; and



generating native code for the spreadsheet productivity application, said native code embedded with said network-based functionality and said non-network-based functionality for providing non-network-based operations and network-based operations from said spreadsheet productivity application.

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106. A method of creating a spreadsheet productivity application having network-based functionality, comprising:

generating code for network-based functionality in a software platform for providing network-based operations to a spreadsheet productivity application;

generating code for non-network-based functionality in the software platform, said code for non-network-based functionality comprising a native object model and a native script engine; and

generating native code for the spreadsheet productivity application, said native code embedded with said network-based functionality and said non-network-based functionality.

107. The method of claim 106, wherein said code for network-based functionality comprises a library of user tools, said user tools configured to provide network-based functionality including at least one of :

page scraping; and

stock quotes in real time.

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108. The method of claim 107, wherein said code for network-based functionality comprises a productivity application extender in communication with said user tools, said productivity application extender configured to provide at least one of :  
document packaging, caching, data initialization, and command routing.

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109. The method of claim 108, wherein said code for network-based functionality comprises a library of developer tools, said developer tools configured to provide at least one of :

layout utilities, forms management, query management, a data modeler, and a packaging assistant.

110. A method of creating a spreadsheet productivity application having network-based functionality, comprising:

receiving code in a platform for network-based functionality to provide network-based operations to a spreadsheet productivity application;

receiving code in the platform for non-network-based functionality to provide non-network-based operations to the spreadsheet productivity application; and

receiving native code for the spreadsheet productivity application in the platform, wherein said native code is embedded with said network-based functionality and said non-network-based functionality.

111. A method of creating a spreadsheet productivity application having network-based functionality, comprising:

receiving code in a software platform for custom network-based  
functionality to provide network-based operations to a spreadsheet productivity application;

receiving code in the software platform for custom non-network-based  
functionality to provide non-network-based operations to the spreadsheet productivity

5 application, said code for non-network-based functionality comprising a native object model, and  
a native script engine; and

receiving native code for the spreadsheet productivity application, said  
native code embedded with said network-based functionality and said non-network-based  
functionality.

112. A system for providing a combination of network-based services and non-  
network-based services within a spreadsheet productivity application, comprising:

a non-network component that is interpretable by a spreadsheet  
productivity application;

a network component that is capable of providing real-time access to  
network-based services, and

code associated with said spreadsheet productivity application for  
interpreting said network component for allowing access to said network-based services within  
the spreadsheet productivity application.

113. The system of claim 112, wherein said code for said network-based  
services are received over a network.

114. The system of claim 113, wherein said network-based services provide dynamic network-based content to a spreadsheet which is opened within the spreadsheet productivity application.

5 115. The system of claim 114, wherein said dynamic network-based content is accessible in real-time from within the spreadsheet opened in the spreadsheet productivity application.

10 116. The system of claim 115, wherein said code comprises:  
an extender routine to support base functionality of said network  
component; and  
developer tools for developing the spreadsheet with network-enabling  
objects embedded therein.

15 117. The system of claim 116, wherein said developer tools enable creation of Internet applications using said spreadsheet productivity application by providing means for embedding at least one network-enabling object in the spreadsheet.

20 118. The system of claim 117, wherein said developer tools are accessible from within the spreadsheet productivity.

119. The system of claim 117, wherein said developer tools comprises a user interface to expose said developer tools to a user.

120. The system of claim 119, wherein said user interface is a toolbar that exposes a plurality of tool sets to the user.

5 121. The system of claim 119, wherein said user interface is exposed to the user within the spreadsheet productivity application, said user interface appearing in addition to a standard toolbar of the spreadsheet productivity application.

122. The system of claim 117, wherein said extender routines are provided as a component object model component.

123. A system for providing a combination of network-based services and non-network based services within a spreadsheet productivity application, comprising:

a non-network component that is interpretable by a spreadsheet productivity application;

a network component that is capable of providing access to network-based services over a network, wherein said network-based services provide dynamic network-based content to a spreadsheet opened within the spreadsheet productivity application;

extender routines to support base functionality of said network component,  
20 said extender routines capable of interpreting said network component for allowing access to said network-based services within the spreadsheet productivity application; and

developer tools for providing the capability for developing a spreadsheet with network-enabling objects embedded therein, said developer tools accessible within the spreadsheet productivity application.

5           124.   The system of claim 123, wherein said extender routines are provided separately from external to the spreadsheet productivity application.

125.   A system for providing a combination of network-based services and non-network based services within a spreadsheet productivity application, comprising:

10                   a network component that is capable of providing access to network-based services, said network-based services being received from a network for utilization within the spreadsheet productivity application, said first component providing real-time content from the network; and

15                   a non-network component for providing non-network-based services within said spreadsheet productivity application.

126.   The system of claim 125, wherein said non-network component is capable of providing static content.

20           127.   The system of claim 126, wherein said network-based services provide dynamic network-based content to a spreadsheet which is opened within the spreadsheet productivity application.

128. The system of claim 127, wherein said dynamic network-based content is updated in real-time within the spreadsheet, while maintaining said static data.

129. The system of claim 128, wherein said first component comprises  
5 developer tools, said developer tools providing the capability for developing the spreadsheet with network-enabling objects embedded therein.

130. The system of claim 129, wherein said developer tools enable creation of an Internet application using said spreadsheet production application by embedding network-enabling objects in the spreadsheet.

131. The system of claim 130, wherein said developer tools comprises a user interface to display said developer tools to a user.

132. The system of claim 131, wherein said user interface is a toolbar that displays a plurality of tool sets to the user within the spreadsheet productivity application.

133. A system for providing a combination of network-based services and non-network based services within a network-enabled spreadsheet productivity application,  
20 comprising:

means for providing non-network based functionality;

means for providing real-time access to network-based services; and

means for allowing access to said network-based services within the network-enabled spreadsheet productivity application.

134. A system for providing a combination of network-based services and non-network-based services within a spreadsheet productivity application, comprising:

a means for providing non-network based functionality that is interpretable by a spreadsheet productivity application;

means for providing access to network-based services over a network in communication with said means for providing non-network-based functionality;

means to support base functionality of said network-based services, wherein said means to support base functionality is capable of interpreting said means for providing access to network-based services; and

means for embedding network-enabling objects in a spreadsheet which is accessible from within the spreadsheet productivity application.

135. A system for providing a combination of network-based services and non-network based services within a spreadsheet productivity application, comprising:

means for providing access to network-based services over a network for utilization within the spreadsheet productivity application, said means for providing access to

network-based services further for providing real-time content from the network; and

means for providing non-network-based services within said spreadsheet productivity application.



136. A method for providing network-based functionality to a spreadsheet embedded with network-enabling objects, comprising:

receiving a request from a remote client to receive network-based functionality, said remote client having network-enabling software for embedding a network enabling object within a spreadsheet; and

transmitting, to said remote client, software code for implementing desired network-based functionality, in response to the request.

137. The method of claim 136, further comprising authenticating said remote client after receiving said request from the remote client.

138. The method of claim 137, further comprising providing a secure connection to said client after said authenticating.

139. A method for providing network-based functionality to a spreadsheet embedded with at least one network-enabling object, said spreadsheet opened in a productivity application, the method comprising:

receiving a request from a remote client to receive network-based functionality for a spreadsheet, said remote client having locally-stored, requisite network-enabling software;

authenticating said remote client;

providing a secure connection to said client; and

transmitting said network-based functionality for installation through said network-enabling software to said remote client.

140. The method of claim 139, wherein said network-enabling software is  
5 executed on said remote client with said productivity application.

141. A method for providing network-based functionality to a spreadsheet embedded with at least one network-enabling object, said spreadsheet being executed on a remote client, the remote client in connection with a server providing support for the network-based functionality, the method comprising:

receiving a login request from a remote client;

receiving a request for network-enhanced functionality from said remote client;

transmitting said request to a web server extender;

providing security authentication services to verify and authenticate said remote client by said web server extender; and

transmitting requested network-enhanced functionality to said remote client for embedding network functionality within a spreadsheet.

20 142. A method for providing network-based functionality to a spreadsheet embedded with at least one network-enabling object, comprising:

receiving a login request from a remote client;

authenticating said remote client;

establishing a secure connection with said client;

receiving information from said client to determine whether said remote  
client has requisite network-enabling software stored locally; and

transmitting to said client, code for implementing network-based within a  
5 spreadsheet.

143. A method for providing network-based functionality to a spreadsheet  
having a network-enabling object, comprising:

providing a secure connection to said client;

transmitting a query to said remote client to determine whether said  
remote client has network-enabling software stored locally;

transmitting requisite network-enabling software to said remote client; and

providing said client with desired network-based functionality through  
said network-enabling software for implementation within the spreadsheet.

144. A method for providing network-based functionality to a spreadsheet  
having a network-enabling object, comprising.

providing a secure connection to said client;

receiving a request for network-enhanced functionality from said remote  
20 client;

transmitting said request to a web server extender; and

transmitting requested network-enhanced functionality to said remote  
client for implementation within a spreadsheet.

145. A method for receiving network-based functionality in a spreadsheet embedded with network-enabling objects, said spreadsheet being maintained on a remote client, the remote client connecting to a server providing support for the network-based functionality,  
5 the method comprising:

    sending a login request to a server providing network-based functionality;  
    providing authenticating information;  
    establishing a secure connection to said server;  
    sending a request for appropriate network-based functionality to said  
server; and  
    receiving requested network-based functionality for implementation  
within a spreadsheet.

146. A method for receiving network-based functionality in a spreadsheet embedded with a network-enabling object, said spreadsheet being stored on a remote client, the remote client in communication with a server providing support for the network-based functionality, the method comprising:

    sending a login request to a server providing network-based functionality;  
    providing authenticating information;  
    establishing a secure connection to said server;  
    receiving requisite network-enabling software from said server;  
    sending a request for appropriate network-based functionality; and

receiving requested network-based functionality for implementation  
within a spreadsheet.

147. A method for receiving network-based functionality in a spreadsheet  
5 embedded with a network-enabling object, said spreadsheet being stored on a remote client, the  
remote client connecting to a server providing support for the network-based functionality, the  
method comprising:

10 sending a login request to a server;  
sending a request for network-enhanced functionality to said server;  
receiving security authentication services from said server for verification  
and authentication; and  
receiving requested network-enhanced functionality for implementation in  
a spreadsheet.

15 148. A system for providing support for network-based functionality,  
comprising:

a memory; and  
a processor disposed in communication with said memory, said processor  
configured to:

20 receive a login request from a remote client;  
authenticate said remote client; and  
provide said client with desired network-based functionality for  
implementation within a spreadsheet.

149. A system for providing network-based functionality to personal computer documents embedded with network-enabling objects, comprising:

a memory;

5 a processor disposed in communication with said memory, said processor configured to:

receive a login request from a remote client,

authenticate said remote client,

establish a secure connection with said client after authentication, and

provide said client with network-based functionality for implementation within a spreadsheet.

150. A method, performed by a computer, for populating a cell of a network-enabled spreadsheet, comprising:

receiving a selection of a cell in a spreadsheet;

receiving a parameter for a network query, the parameter corresponding to network-based content;

retrieving network-based content corresponding to the parameter; and

populating the cell with the network-based content.

151. The method of claim 150, wherein said parameter comprises at least one of:

a network address for retrieving said network-based content, a name of said network-based content, and a type of said network-based content.

152. The method of claim 150, wherein said network-based content is static.

153. The method of claim 150, wherein said network-based content is dynamic.

154. The method of claim 153, further comprising:

receiving an indication of a change in said retrieved network-based content; and  
populating the cell with the change in said network-based content.

155. The method of claim 153, further comprising:

automatically re-populating the cell with dynamically-changing content in real

time.

156. The method of claim 153, further comprising:

re-populating the cell with dynamically-changing content at predetermined

intervals.

157. The method of claim 156, wherein said predetermined intervals are selected by a

user.

158. The method of claim 150, wherein said query is a predefined query.

159. The method of claim 150, wherein said query is defined by a user.

160. A computer-readable medium, encoded with processing instructions for implementing a method, performed by a computer, for populating a cell of a network-enabled spreadsheet, the method comprising:

5 receiving a selection of a cell in a spreadsheet;  
receiving a parameter for a network query, the parameter corresponding to network-based content;  
retrieving network-based content corresponding to the parameter; and  
populating the cell with the network-based content.

161. An apparatus for populating a cell of a network enabled spreadsheet, comprising:  
means for receiving a selection of a cell in a spreadsheet;  
means for receiving a parameter for a network query, the parameter corresponding to network-based content;  
means for retrieving network-based content corresponding to the parameter; and  
means for populating the cell with the network-based content.

162. An apparatus for populating a cell of a network-enabled spreadsheet comprising:  
a processor; and  
20 a memory in communication with the processor, the memory for storing a plurality of processing instructions for directing a processor to:  
receive a selection of a cell in a spreadsheet;



receive a parameter for a network query, the parameter corresponding to  
network-based content;

retrieve network-based content corresponding to the parameter; and  
populate the cell with the network-based content.

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163. A method for transmitting network-based content to a user through a network-  
enabled spreadsheet productivity application, comprising:

receiving a request from a user for network-based content over a computer  
network;  
determining a network address for said network-based content;  
retrieving said network-based content from a server corresponding to the network  
request; and  
transmitting the network-based content to the user for display in a cell of a  
network-enabled spreadsheet.

164. The method of claim 163, further comprising:  
authenticating the user prior to the transmitting step.

165. The method of claim 163, wherein the request is received from a network-enabled  
20 object embedded in a spreadsheet operated by the user.

166. The method of claim 163, wherein said determining further comprises:

receiving the request from the user including a network address for the network-based content.

167. The method of claim 163, wherein said network-based content is static.

168. The method of claim 163, wherein said network-based content is dynamic.

169. The method of claim 168, wherein said transmitting further comprises:  
streaming the network-based content to the client in real time.

170. The method of claim 168, wherein said transmitting further comprises:  
transmitting said network-based content at predetermined intervals.

171. The method of claim 170, wherein said predetermined intervals are defined by the user.

172. A computer-readable medium encoded with processing instructions for implementing a method, performed by a computer, for transmitting network-based content to a user through a network-enabled spreadsheet productivity application, the method comprising:

receiving a request from a user for network-based content over a computer network;

determining a network address for said network-based content;

retrieving said network-based content from a server corresponding to the network request; and

transmitting the network-based content to the user for display in a cell of a network-enabled spreadsheet.

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173. An apparatus for transmitting network-based content to a user through a network-enabled spreadsheet productivity application, comprising:

means for receiving a request from a user for network-based content over a computer network;

means for determining a network address for said network-based content;

means for retrieving said network-based content from a server corresponding to the network request; and

means for transmitting the network-based content to the user for display in a cell of a network-enabled spreadsheet.

174. An apparatus for transmitting network-based content to a user through a network-enabled spreadsheet productivity application, comprising:

a processor; and

a memory in communication with the processor, the memory encoded with a plurality of processing instructions allowing the processor to:

receive a request from a user for network-based content over a computer network;

determine a network address for said network-based content;

retrieve said network-based content from a server corresponding to the  
network request; and

transmit the network-based content to the user for display in a cell of a  
network-enabled spreadsheet.

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175. A method for receiving network-based content in a spreadsheet productivity  
application, comprising:

receiving a network-enabling object over a computer network connection;

embedding the network-enabling object in a spreadsheet maintained by a  
spreadsheet productivity application;

defining a data parameter corresponding to network-based content;

designating at least one cell for displaying said network-based content;

receiving the network-based content corresponding to the data parameter from a  
network server; and

displaying said network-based content in said at least one cell.

176. The method of claim 175, wherein the network-based content is static.

177. The method of claim 175, wherein said network-based content is dynamic.

178. The method of claim 175, further comprising:

defining an interval to update said network based content.

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179. The method of claim 175, further comprising:

transmitting login information prior to said receiving said network-based content.

180. A computer-readable medium encoded with processing instructions for

5 implementing a method, performed by a computer, for receiving network-based content in a spreadsheet productivity application, the method comprising:

receiving a network-enabling object over a computer network connection;

embedding the network-enabling object in a spreadsheet maintained by a

spreadsheet productivity application;

defining a data parameter corresponding to network-based content;

designating at least one cell for displaying said network-based content;

receiving the network-based content corresponding to the data parameter from a

network server; and

displaying said network-based content in said at least one cell.

181. An apparatus for receiving network-based content in a spreadsheet productivity application, comprising:

means for receiving a network-enabling object over a computer network connection;

20 means for embedding the network-enabling object in a spreadsheet maintained by a spreadsheet productivity application;

means for receiving a defined data parameter corresponding to network-based content;

means for designating at least one cell for displaying said network-based content;

means for receiving the network-based content corresponding to the data

parameter from a network server; and

means for displaying said network-based content in said at least one cell.

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182. An apparatus for receiving network-based content in a spreadsheet productivity application, comprising:

a processor; and

a memory in communication with the processor, the memory for storing a plurality of processing instructions allowing the processor to:

receive a network-enabling object over a computer network connection;

embed the network-enabling object in a spreadsheet maintained by a

spreadsheet productivity application;

receive a defined data parameter corresponding to network-based content;

receive a designation of at least one cell for displaying said network-based content;

receive the network-based content corresponding to the data parameter from a network server; and

display said network-based content in said at least one cell.

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183. A method for transmitting network-based content to a spreadsheet productivity application, comprising:

transmitting a network-enabling object over a computer network connection to a client, the network -enabling object for embedding in a spreadsheet maintained by a spreadsheet productivity application;

receiving a data parameter corresponding to a request for network-based content;

5 retrieving said network-based content from a content provider; and

transmitting said network-based content to said client for display in at least one cell of the spreadsheet.

184. The method of claim 183, wherein the network-based content is static.

185. The method of claim 183, wherein said network-based content is dynamic.

186. The method of claim 185, further comprising:

receiving from said client an interval to update said network based content.

187. The method of claim 185, wherein said transmitting network-based content further comprises:

transmitting said network-based content in real time.

20 188. The method of claim 183, further comprising:

authenticating login information prior to said transmitting said network-based content.

189. A computer-readable medium encoded with processing instructions for implementing a method, performed by a computer, for transmitting network-based content to a spreadsheet productivity application, the method comprising:

transmitting a network-enabling object over a computer network connection to a client, the network -enabling object for embedding in a spreadsheet maintained by a spreadsheet productivity application;

receiving a data parameter corresponding to a request for network-based content;

retrieving said network-based content from a content provider; and

transmitting said network-based content to said client for display in at least one cell of the spreadsheet.

190. An apparatus for transmitting network-based content to a spreadsheet productivity application, comprising:

means for transmitting a network-enabling object over a computer network connection to a client, the network -enabling object for embedding in a spreadsheet maintained by a spreadsheet productivity application;

means for receiving a data parameter corresponding to a request for network-based content;

means for retrieving said network-based content from a content provider; and

means for transmitting said network-based content to said client for display in at least one cell of the spreadsheet.



191. An apparatus for transmitting network-based content to a spreadsheet productivity application, comprising:

a processor; and

a memory in communication with said processor, the memory for storing a

5 plurality of processing instructions directing the processor to:

transmit a network-enabling object over a computer network connection to a client, the network -enabling object for embedding in a spreadsheet maintained by a spreadsheet productivity application;

10 receive a data parameter corresponding to a request for network-based content;

retrieve said network-based content from a content provider; and

15 transmit said network-based content to said client for display in at least one cell of the spreadsheet.